

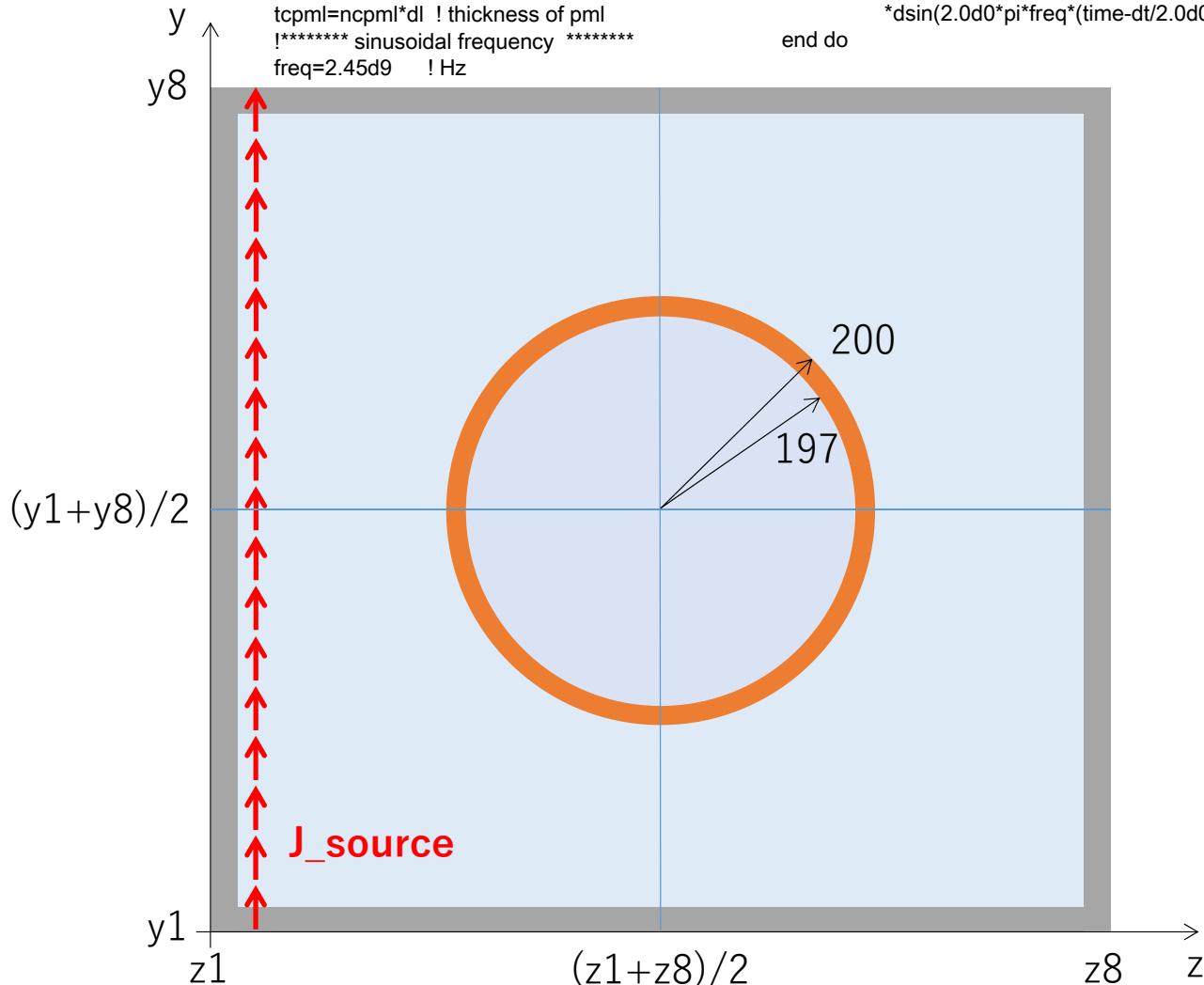
v1.2 Mar.2016

Sphere shielding

```
subroutine lattice_time_2dtm
***** lattice widths *****
dl=2.0d-3
dy=dl
dz=dl
***** number of cells in pml (ncpml) *****
ncpml=8 ! number of cell in pml
tcpml=ncpml*dl ! thickness of pml
***** sinusoidal frequency *****
freq=2.45d9 ! Hz
```

```
subroutine j_source_2dtm
do j=yi(1),yi(8)-1 ! for z propagation
k=zi(2)+2
id=id_ey(j,k)
ey(j,k)=ey(j,k) &
-(dt/eps(id))/(1+(sig(id)*dt/(2.0d0*eps(id)))) &
*(-2.0d0)/sqrt(mu0/eps0)/dz & ! J [A/m2]
*dsin(2.0d0*pi*freq*(time-dt/2.0d0))
end do
```

```
subroutine modeling_2dtm
! circular media
jcent=nint((yi(1)+yi(8))/2.0)
kcen=nint((zi(1)+zi(8))/2.0)
radius=200.0d-3
call circular_media
```



```
subroutine circular_media
***** fill with circular media *****
!
!
! * * *
! *   *
! *   *
! *   *
! * +   *
! *   *
! *   *
! *   *
! * * *
!
do j=1,iy
do k=1,iz-1
radi=sqrt(((j-jcent)*dy)**2+((k-kcent)*dz)**2)
if(radi <= radius .and. radi >= radius-3.0d-3) then
id_ez(j,k)=1
end if
end do
end do
do j=1,iy-1
do k=1,iz
radi=sqrt(((j-jcent)*dy)**2+((k-kcent)*dz)**2)
if(radi <= radius .and. radi >= radius-3.0d-3) then
id_ey(j,k)=1
end if
end do
end do
end subroutine circular_media
```